

IN THE SPECIFICATION:

Please amend the specification as follows:

Please replace the paragraph on page 1, lines 1-5 with the following:

The invention relates to an invasive device that is intended to be introduced into an object that is to be imaged by means of an MRI apparatus, which invasive device has a distal end and is provided with ~~an envelope~~ a housing that is connected thereto, with a circuit that is arranged at the area of the distal end, and also with an electrical connection conductor that is connected to the circuit and extends through the ~~envelope~~ housing.

Please replace the paragraph on page 1, lines 6-18 with the following:

A device of this kind is known from U.S. Pat. No. 5,916,162. As is customary in the case of a medical MRI apparatus, the object that is to be imaged by means of the MRI apparatus disclosed in the cited patent is a part of the body of a patient. For numerous medical examinations or interventions it is desirable to introduce a device into the body of the patient, for example, a catheter, a laparoscope or a biopsy needle. Such a device can be guided to an internal organ via an existing opening in the body or via an opening that is especially created for this purpose, for example, in an artery. The device has an elongate shape where a distal end that forms one unit with a usually hollow ~~envelope~~ housing whereby the distal end is advanced through the body opening during operation. In or on the distal end there may be provided an (electrical) circuit for treatment or observation of the inside of the patient. After its introduction, the attendant physician can

no longer directly observe the location of said distal end, even though in such cases it is very important to know where the end of the device is situated in the body of the patient.

Please replace the paragraph on page 1, lines 19-27 with the following:

The cited U.S. Pat. No. 5,916,162 describes an invasive device that is suitable for use in conjunction with imaging by means of an MRI apparatus. The patient is imaged by the MRI apparatus while the invasive device is present within the body. In order to make the device visible, it is provided with a circuit in the form of an RF coil that is arranged at the distal end and is connected, via an electrical connection conductor that extends through the ~~envelope~~ housing, to a processing unit for processing signals that are received by the RF coil. The position of the RF coil can be determined on the basis of the nature of the magnetic resonance signals received. This position is subsequently superposed on an image that is to be formed by means of the MRI apparatus and can be displayed on a monitor.

Please replace the paragraph beginning on page 1, line 28 and ending on page 2, line 6 with the following:

Because the electrical connection conductor that extends through the ~~envelope~~ housing is situated in the RF field of the MRI apparatus, it is subject to heating; this is annoying to the patient to be examined. In order to counteract such heating, the connection conductor in the known invasive device is accommodated in a hollow carrier,

the outer side of which is provided with a layer of a conductive material that has a comparatively high electrical resistance. Because of the comparatively high electrical resistance, the amount of heat developed in this layer is negligibly small but the layer is still capable of shielding the electrical connection conductor from the RF field nevertheless.

Please replace the paragraph on page 2, lines 7-10 with the following:

Even though it usually is not annoying that the ~~envelope~~ housing is visible in the MRI image during the maneuvering with the invasive device, when such known shielding is used it may occur that the ~~envelope~~ housing is also visible in the ultimate MRI image to be formed; such a presence is undesirable for some applications.

Please replace the paragraph on page 3, lines 30-34 with the following:

The self-inductances in another embodiment in accordance with the invention have a value of at the most 1 μH . It has been found in practice that this choice of the value of the self-inductances suffices to realize the desired separation between the segments while nevertheless such small dimensions of the self-inductances are possible that these elements can be provided in ~~an envelope~~ a housing of, for example, a catheter.

Please replace the paragraph on page 5, lines 13-19 with the following:

FIG. 2 shows an invasive device in accordance with the invention in the form of a catheter 17. The catheter comprises a distal end 18 and ~~an envelope~~ a housing 19 that is connected to the distal end 18. A circuit 20 is provided at the distal end 18. The circuit 20 in the embodiment that is shown in FIG. 2 is formed as a coil wherethrough an LF current can be conducted. However, it is to be noted that the circuit 20 may have a variety of other appearances, for example, a light source for illumination in the case of internal observation or for internal treatment, or a sensor circuit for the measurement of physiological quantities.

Please replace the paragraph on page 5, lines 20-30 with the following:

An electrical connection conductor 21 that is connected to the circuit 20 extends through the ~~envelope~~ housing 19 for the transport of (DC) power supply energy and/or LF signals. In this context LF signals are to be understood to mean signals of a frequency that is substantially lower than the frequency of the RF field that is used in the MRI apparatus, for example, 64 MHz. This low frequency should be so low that the conductance by the connection conductor 21 can take place practically without interference and that this low frequency does not have a disturbing effect on the RF field. The desired effect of an unimpeded transport of LF signals without exerting a disturbing effect on the RF field is achieved in that the connection conductor 21 consists of mutually separated segments 22-

i, each of which is shorter than $1/4$ of the wavelength of said RF field of the MRI apparatus, that is, preferably shorter than $1/20$ of said wavelength.

Please replace the paragraph beginning on page 5, line 31 and ending on page 6, line 7 with the following:

The separation between the segments is realized by means of self-inductance elements ~~74-1, 74-2, 74-i~~ 23-1, 23-2, 23-i. As is known, self-inductance elements are frequency-dependent separating elements that constitute a conductor for low-frequency currents and an isolator for RF alternating current. The frequency used for the RF field that is generated by the coils 6 is of the order of magnitude of some tens of MHz and typically amounts to, for example 64 MHz. This frequency corresponds to a wavelength of approximately 469 cm, so that the segments 22-i have a length of approximately $469/20 \approx 23$ cm. Said segments are constructed in the form of two cores that are twisted around one another; this has the effect that the power supply current that flows through these cores generates a magnetic field that cannot be noticed outside the supply conductor and that no current (or only a negligibly small current) is induced therein by said field.

Please replace the paragraph on page 6, lines 25-31 with the following:

It has been found that it is possible to realize a self-inductance of $0.5 \mu\text{H}$; in that case the self-inductance element has a thickness of 1.8 mm and a length of 13 mm. For this purpose use is made of 66 bifilar turns of a wire of a thickness of 0.1 mm. A self-

inductance of such dimensions can be introduced into the ~~envelope~~ housing of a commonly used catheter that is known by the name 6 French. When these self-inductances are spaced 20 cm apart, the connection conductor will not be heated and there will be no annoying interference with the homogeneous magnetic field and the RF field of the MRI apparatus.